BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF DELAWARE


IN THE MATTER OF THE APPLICATION )
OF DELMARVA POWER AND LIGHT COMPANY )
FOR AN INCREASE IN ELECTRIC BASE RATES ) PSC Docket No. 11-528
AND MISCELLANEOUS TARIFF CHANGES )
(FILED DECEMBER 2, 2011) )
)


DIRECT TESTIMONY OF

ANDREA C. CRANE

RE:  COST OF CAPITAL


ON BEHALF OF

THE DIVISION OF THE PUBLIC ADVOCATE


May 15, 2012

TABLE OF CONTENTS

Page

## I.     STATEMENT OF QUALIFICATIONS

1   **Q.   Please state your name and business address.**

2   A.    My name is Andrea C. Crane and my business address is 90 Grove Street, Suite 211,

3         Ridgefield, CT 06877.  (Mailing Address: P.O. Box 810, Georgetown, Connecticut 06829)

4

5   **Q.   By whom are you employed and in what capacity?**

6   A.    I am President of The Columbia Group, Inc., a financial consulting firm that specializes in

7         utility regulation.  In this capacity, I analyze rate filings, prepare expert testimony, and

8         undertake various studies relating to utility rates and regulatory policy.  I have held several

9         positions of increasing responsibility since I joined The Columbia Group, Inc. in January

10        1989.  I became President of the firm in 2008.

11

12  **Q.   Please summarize your professional experience in the utility industry.**

13  A.    Prior to my association with The Columbia Group, Inc., I held the position of Economic

14        Policy and Analysis Staff Manager for GTE Service Corporation, from December 1987 to

15        January 1989.  From June 1982 to September 1987, I was employed by various Bell Atlantic

16        (now Verizon) subsidiaries.  While at Bell Atlantic, I held assignments in the Product

17        Management, Treasury, and Regulatory Departments.

18

19  **Q.   Have you previously testified in regulatory proceedings?**

20  A.    Yes, since joining The Columbia Group, Inc., I have testified in over 350 regulatory

3

1    proceedings in the states of Arizona, Arkansas, Connecticut, Delaware, Hawaii, Kansas,

2    Kentucky, Maryland, New Jersey, New Mexico, New York, Oklahoma, Pennsylvania, Rhode

3    Island, South Carolina, Vermont, Washington, West Virginia and the District of Columbia.

4    These proceedings involved electric, gas, water, wastewater, telephone, solid waste, cable

5    television, and navigation utilities.  A list of dockets in which I have filed testimony since

6    January 2008 is included in Appendix A.

7

8    **Q.    What is your educational background?**

9    A.    I received a Master of Business Administration degree, with a concentration in Finance, from

10    Temple University in Philadelphia, Pennsylvania.  My undergraduate degree is a B.A. in

11    Chemistry from Temple University.

12

13    **II.    <u>PURPOSE OF TESTIMONY</u>**

14    **Q.    What is the purpose of your testimony?**

15    A.    On December 2, 2011, Delmarva Power and Light Company ("DPL" or "Company") filed an

16    Application with the Delaware Public Service Commission ("PSC" or "Commission")

17    seeking a rate increase of $31,760,741, or approximately 4.97%. The Company's filing was

18    based on a partially projected Test Period consisting of three months of actual data and nine

19    months of estimated results.  On March 2, 2012, DPL updated its Test Period to reflect

20    twelve months of actual data ("12+0 Update").  In its 12+0 Update, DPL claimed a revenue

21    deficiency of $33,186,072.

1    The Columbia Group, Inc. was engaged by the Delaware Division of the Public

2    Advocate ("DPA") to review the Company's Application and to provide recommendations to

3    the PSC regarding capital structure and cost of capital issues.

4

5    **III.    SUMMARY OF CONCLUSIONS**

6    **Q.    What are your conclusions concerning the Company's capital structure and cost of**

7    **capital?**

8    A.    Based on my analysis of the Company's filing and other documentation in this case, my

9    conclusions are as follows:

10    1.    Based on its 12+0 Update, DPL has a capital structure consisting of 48.29% common

11    equity, 49.05% long-term debt, and 2.67% short-term debt (see Schedule ACC-1).

12    2.    Given the decline in capital costs since DPL's last base rate case, a return on equity

13    of 10.0% is no longer supportable.

14    3.    The Company has a pro forma cost of common equity of 8.73% (see Schedule ACC-

15    2).

16    4.    The Company has a pro forma cost of long-term debt of 5.04% (see Schedule ACC-

17    1).

18    5.    The Company has a pro forma cost of short-term debt of 0.35% (see Schedule ACC-

19    1).

20    6.    Based on my recommended capital structure and capital cost rates, DPL has an

21    overall cost of capital of 6.69% (see Schedule ACC-1).

1      7.      The Company's filing includes several proposals that will significantly reduce

2              shareholder risk, such as the Reliability Investment Recovery Mechanism ("RIM"),

3              the use of a fully-forecasted Test Period, the implementation of a Modified Fixed

4              Variable ("MFV") rate design, and consideration of a multi-year rate plan. If the

5              PSC adopts one or more of these mechanisms, then it should make a corresponding

6              reduction in the Company's authorized cost of equity.

7

8    **IV.    DISCUSSION OF THE ISSUES**

9      **A.     Introduction**

10   **Q.    What role does cost of capital play in the ratemaking process?**

11   A.    The cost of capital approved by a regulatory body is used to determine the amount of

12         operating income that is included in the company's revenue requirement. The authorized

13         cost of capital is applied to a company's investment, or rate base, in order to determine the

14         amount of operating income that will be included in utility rates. This operating income is

15         intended to provide the utility with sufficient funds to meet its return to debt holders (interest

16         expense) and its return to shareholders. Thus, cost of capital provides for a return on both

17         the debt and equity used to finance the investment in the utility.

18

19   **Q.    How is cost of capital determined in utility rate proceedings?**

20   A.    A utility's cost of capital is developed by first determining its capital structure, i.e., the

21         relative amounts of debt and equity that are used to finance the investment in the utility. The

1    pro forma cost rate for each component in the capital structure is then determined or

2    estimated based on various financial models.  The pro forma cost rate for each component is

3    then multiplied by the percentage of each component in the capital structure to weight the

4    relative costs of each component, resulting in an overall cost of capital for the utility.

5

6  **Q.    What is the cost of capital and capital structure that the Company is requesting in this**

7    **case?**

8  A.    In its original filing, DPL utilized the following capital structure and cost of capital:

9

| Capital | Percentage | Cost | Weighted Cost |
|---|---|---|---|
| Long-Term Debt | 50.52% | 5.05% | 2.55% |
| Common Equity | 49.48% | 10.75% | 5.32% |
| Total | 100.00% | | 7.87% |

10

11

12    In its 12+0 Update, DPL updated its filing to reflect its actual capital structure and embedded

13    debt rate at December 31, 2011, the end of the Test Period.  That 12+0 Update resulted in an

14    overall cost of capital that was very close to the original filing, as shown below:

15

| Capital | Percentage | Cost | Weighted Cost |
|---|---|---|---|
| Long-Term Debt | 50.39% | 5.04% | 2.54% |
| Common Equity | 49.61% | 10.75% | 5.33% |
| Total | 100.00% | | 7.87% |

16

1    DPL did not include short-term in its proposed capital structure in either its original filing or

2    in its 12+0 Update.

3

4    **B.    Capital Structure**

5  **Q.  What sources of capital do investor-owned utilities typically utilize to finance their**

6    **investments in utility operations?**

7  A.  Investor-owned utilities generally utilize common equity and long-term debt to finance their

8    investments.  Most utilities also utilize short-term debt to some extent and some utilities also

9    use preferred stock as a financing vehicle.

10

11  **Q.  What are the relative costs of each capital component?**

12  A.  Common equity is generally the most expensive component in a utility's capital structure.

13    This is because the common equity shareholders do not have a contractual right to any

14    specified return and because they are last in line to be paid in the event of a bankruptcy;

15    therefore common equity is considered the most risky form of capital for an investor.  Since

16    utilities do have a contractual obligation to meet debt service payments on debt, the financial

17    community generally views debt as being less risky than common equity.  Therefore, debt

18    generally has a lower cost of capital than equity.  Moreover, since short-term debt is viewed

19    as being less risky than long-term debt, short-term debt generally has a lower cost than long-

20    term debt.  Preferred stock is viewed as significantly less risky than common equity and

21    usually carries rates that are more in line with long-term debt costs.

1    **Q.    Given the relatively lower cost for debt relative to common equity, why don't utilities**

2          **finance their operations exclusively with debt?**

3    A.    While debt is generally considered less risky than equity, as the amount of debt in a

4          company's capital structure increases, the utility reaches a point where the cost of debt begins

5          to increase due to the amount of leverage in the capital structure and the investors' fear of

6          default. Essentially, the financial markets become concerned that if a company has too much

7          debt there is a greater chance that it will be unable to meet all of its debt service obligations

8          and therefore the cost of debt begins to rise. Therefore, utilities attempt to balance the fact

9          that debt is generally less expensive than equity with the fact that the cost of debt increases as

10         the amount of debt in the capital structure increases. For this reason, utilities tend to have

11         capital structures that are composed of approximately 50% debt and 50% equity.

12               There is one significant difference, however, between the ratemaking treatment of

13         common equity costs and the treatment of long-term debt costs. When a company's cost of

14         capital is determined, an embedded cost is used for debt but a prospective cost is used for

15         common equity. This is because a utility continues to have an obligation for the debt service

16         on all outstanding debt regardless of when the debt was actually issued but no such

17         obligation exists with regard to common equity. Thus, while a company's cost of equity

18         depends on current market conditions, its cost of debt is impacted primarily by the market

19         conditions that existed when the debt was originally issued.

20

21   **Q.    Are you recommending any adjustments to the Company's proposed capital structure?**

9

1    A.    Yes, I am recommending one adjustment to the Company's capital structure. Specifically, I

2          am recommending that short-term debt be included in the Company's capital structure.

3

4    **Q.    What is the basis for your recommendation?**

5    A.    Short-term debt is an appropriate component of a utility's capital structure if it is regularly

6          and consistently utilized for financing. Most utilities do utilize significant amounts of short-

7          term debt, especially to finance construction work in progress ("CWIP) and working capital

8          requirements. According to the response to PSC-COC-7, short-term debt has been utilized

9          by DPL from at least January 2007 to the present, although the amount of short-term debt

10         outstanding in any given month has varied over this period.

11              In addition, in the current case, DPL is requesting recovery of costs associated with a

12         new credit facility agreement that was executed by Pepco Holdings, Inc. ("PHI") on behalf of

13         its subsidiaries during the test year. This credit facility provides PHI with the availability of

14         up to $1.5 billion in short-term debt, a portion of which has been allocated to each of PHI's

15         utilities, including DPL. Since ratepayers are paying the costs associated with this credit

16         facility, then it is reasonable to provide ratepayers with the benefits of this lower cost

17         financing.

18              As stated on page 11, lines 18-22 of Mr. Ziminsky's Direct Testimony, "PHI's credit

19         facility is vital for serving the day-to-day cash needs of its companies, such as Delmarva.

20         These costs are recorded as interest expense for financial reporting purposes of the Company;

21         however, they are not reflected in the cost of capital for ratemaking purposes and thus would

1    not otherwise be recovered." While DPL has included the costs of the credit facility in its

2    revenue requirement, it has not given ratepayers the benefit of this lower cost financing. The

3    "day-to-day cash needs" of DPL are reflected in the Company's working capital requirement,

4    which is a component of its rate base. In determining the Company's revenue requirement,

5    the authorized cost of capital will be applied to rate base, including to the working capital

6    component of rate base. Therefore, the Company has included financing costs at 7.87% on

7    its "day-to-day cash needs," but is paying significantly less than 0.50% for this financing.

8

9    **Q.    Should DPL's customers benefit from this lower-cost debt?**

10   A.    Yes, they should. However, under the Company's proposal, ratepayers will not benefit from

11         this lower-cost debt. There is no way for ratepayers to benefit from short-term debt through

12         the ratemaking process unless short-term debt is included in the Company's capital structure.

13         If ratepayers are paying for this credit facility, then it is reasonable to expect that ratepayers

14         should also benefit from the lower financing costs resulting from this facility.

15         If the Company wants to exclude short-term debt from the capital structure, then it

16         should either (a) exclude all credit facility costs from its revenue requirement or (b) exclude

17         all working capital components from rate base. It should not be permitted to recover credit

18         facility costs while at the same time excluding this low-cost financing from the capital

19         structure and charging ratepayers its overall cost of capital on its working capital

20         requirements. Accordingly, at Schedule ACC-1, I have made an adjustment to include short-

21         term debt in DPL's capital structure.

1    **Q.    How did you quantify your adjustment?**

2    A.    My adjustment is based on the amount of short-term debt outstanding at December 31, 2011,

3          the end of the Test Period in this case.  This is consistent with the time period used for the

4          other components of my capital structure. As shown in the response to PSC-COC-3, DPL

5          had $47 million of short-term debt outstanding as of that date.  I recognize that the amount of

6          short-term debt outstanding does vary, sometimes significantly, from month-to-month;

7          however, since the end of 2011, the amount of short-term debt outstanding has increased

8          dramatically.[1]  Moreover, DPL is being allocated credit facility costs associated with $250

9          million of the $1.5 billion available pursuant to the credit facility.  For all these reasons, I

10         believe that my adjustment is conservative.

11

12   **Q.    What is the resulting capital structure that you are recommending in this case?**

13   A.    Based on the relative amounts of common equity, long-term debt, and short-term debt

14         outstanding at December 31, 2011, the end of the Test Period, I am recommending the

15         following capital structure:

| Component | Amount ($000) | Percent |
|---|---|---|
| Common Equity | $851,342 | 48.29% |
| Short-term Debt | $47,000 | 2.67% |
| Long-Term Debt | $864,769 | 49.05% |
| Total | $1,763,111 | 100.00% |

16

---

1 Response to PSC-COC-7.

1          **C.      Cost of Debt**

2    **Q.      What cost rate did you utilize for the Company's long-term debt cost?**

3    A.      As shown in Schedule ACC-1, I utilized a cost of 5.04% for the Company's long-term debt

4            rate.  This is the same rate that DPL reflected in its 12+0 Update.

5

6    **Q.      What rate did you utilize for the Company's short-term debt cost?**

7    A.      I utilized a short-term debt rate of 0.35%.  As shown in the response to PSC-COC-8, this is

8            the actual short-term debt cost at December 31, 2011, which is the end of the Test Period in

9            this case, and is consistent with my recommendation that the pro forma capital structure

10           should reflect the amount of short-term debt outstanding as of that date.

11

12         **D.      Cost of Equity**

13   **Q.      In determining the cost of equity for a regulated utility, what factors are generally**

14           **considered by regulatory commissions?**

15   A.      There are three objectives that are generally used by regulatory commissions when

16           determining the appropriate cost of equity for an investor-owned utility.  These objectives are

17           to provide the utility with earnings that: (1) are sufficient to attract the capital necessary to

18           operate the business; (2) will maintain the financial integrity of the utility; and (3) are

19           comparable to earnings for similar investments with comparable risks.

20

1          There are two U.S. Supreme Court decisions that are most often used by regulators as

2     the standard for determining a reasonable return on equity award.[2] The first case is *Bluefield*

3     *Water Works and Improvement Company v. Public Service Commission of West Virginia*,

4     262 U.S. 679, 692-693 (1923).  In that case, the Court determined that:

5          What annual rate will constitute just compensation depends upon
6          many circumstances and must be determined by the exercise of a fair
7          and enlightened judgment, having regard to all relevant facts.  A
8          public utility is entitled to such rates as will permit it to earn a return
9          on the value of the property which it employs for the convenience of
10         the public equal to that generally being made at the same time and in
11         the same general part of the country on investments in other business
12         undertakings which are attended by corresponding risks and
13         uncertainties; but it has no constitutional rights to profits such as are
14         realized or anticipated in highly profitable enterprises or speculative
15         ventures.  The returns should be reasonably sufficient to assure
16         confidence in the financial soundness of the utility and should be
17         adequate, under efficient and economical management, to maintain
18         and support its credit and enable it to raise the money necessary for
19         the proper discharge of its public duties.  A rate of return may be
20         reasonable at one time and become too high or too low by changes
21         affecting opportunities for investment, the money market, and
22         business conditions generally.

23

24     In the second decision, *Federal Power Commission v. Hope Natural Gas Company*, 320

25     U.S. 591, 603 (1942), the Court found that:

26         The rate-making process under the [Natural Gas] Act, i.e., the fixing
27         of 'just and reasonable' rates, involves a balancing of the investor and
28         the consumer interests….From the investor or company point of view
29         it is important that there be enough revenue not only for operating
30         expenses but also for the capital costs of the business.  These include
31         service on the debt and dividends on the stock.  By that standard the
32         return to the equity owner should be commensurate with returns on

_____

2 I am not an attorney and my comments are not intended to provide a legal opinion.

1    investments in other enterprises having corresponding risks. That
2    return, moreover, should be sufficient to assure confidence in the
3    financial integrity of the enterprise, so as to maintain its credit and to
4    attract capital.
5
6

7    In establishing the authorized cost of equity for an investor-owned utility, regulatory

8    commissions are providing investors with the opportunity to earn the authorized return.

9    However, such returns are not guaranteed and will be influenced by many factors, some of

10   which are outside the control of the utility's management.  Alternatively, between rate cases,

11   utilities are generally not barred from earning returns that exceed those authorized by the

12   regulatory commission in the event that actual returns are greater than those authorized.

13

14   **Q.    How does the PSC generally determine cost of equity for an investor-owned utility?**

15   A.    The PSC has traditionally relied upon the Discounted Cash Flow ("DCF") Model as the

16   primary mechanism to determine cost of equity for a regulated utility.  This preference was

17   reiterated by the PSC in its Order in PSC Docket No. 09-414, where it stated that:

18   For over 20 years, we have relied primarily on the DCF model in
19   ascertaining the appropriate COE [cost of equity] for utilities subject
20   to our jurisdiction, although we consider the results of other COE
21   estimation models in reaching our determination.[3]
22

23   **Q.    How did you determine your cost of equity recommendation?**

---

3 Order in PSC Docket No. 09-414, August 11, 2011, paragraph 284.

1    A.    Given the PSC's primary reliance upon the DCF methodology, I first calculated the

2          Company's cost of equity based on this approach.  I also evaluated the Company's cost of

3          equity based on the Capital Asset Pricing Model ("CAPM").  I then applied a 75%/25%

4          weighting to the DCF and CAPM results, respectively, in recognition of the PSC's primary

5          reliance on the DCF result.  This is the same weighting that I have used for many years in

6          cost of capital analyses in this jurisdiction.

7

8          **1) Discounted Cash Flow Model**

9    **Q.    Please provide a brief description of the DCF methodology.**

10   A.    The DCF method is based on the following formula:

11                              Return on Equity =    $\underline{D_1} + g$
12                                                    $P_0$
13

14         where "$D_1$" is the expected dividend, "$P_0$" is the current stock price, and "g" is the expected

15         growth in dividends.  The DCF methodology is generally applied to a comparable group of

16         investments, usually to a group of companies that provide the same utility service as the

17         utility service for which rates are being set.

18

19   **Q.    How did you determine your comparable group?**

20   A.    In order to minimize the controversy over the appropriate cost of equity for DPL, I utilized

21         the same comparable group as that selected by the Company's witness, Robert B. Hevert.  It

22         should be noted that DPL does not have publicly-traded common stock.  Instead, DPL's

1      parent company, PHI, is the ultimate issuer of stock to the public.

2

3   Q.   **In spite of the fact that you have adopted Mr. Hevert's comparable group, is it likely**

4        **that these companies are more risky than DPL?**

5   A.   Yes, it is. It should be noted that all of the companies in Mr. Hevert's comparable group are

6        vertically-integrated utilities that own generation facilities, unlike PHI and DPL, and are

7        therefore considerably more risky than PHI or its subsidiaries. Not only do these companies

8        own substantial amounts of generation, including nuclear generating units, but in many cases

9        they also have other diversified businesses that increase their overall risk profiles. Thus,

10       while I utilized Mr. Hevert's comparable group, the actual cost of equity to DPL is likely to

11       be lower than the return required by investors in the comparable group.

12

13  Q.   **How did you determine the dividend yield used in your DCF analysis?**

14  A.   To determine an appropriate dividend yield for comparable companies - i.e., the expected

15       dividend divided by the current price - I calculated the dividend yield of each of the

16       comparable companies under several scenarios. According to the testimony of Mr. Hevert,

17       he calculated the DCF dividend yield based on the current annual dividend and the closing

18       stock prices over trading periods of 30, 90, and 180 days. I made a similar calculation. This

19       methodology mitigates the effect of stock price volatility for any given day.   Based on the

20       average stock prices over the past 30, 90, and 180 days, and the current dividend for each

21       company, I determined average dividend yields of 4.25%, 4.21%, and 4.33% respectively for

1        the comparable group, as shown below (and in Schedule ACC-4).

2

| Period | Dividend Yield |
|---|---|
| 30 Day Trading Average | 4.25% |
| 90 Day Trading Average | 4.21% |
| 180 Day Trading Average | 4.33% |
| Current (April 27, 2012) | 4.15% |
| Average | 4.23% |

6

7        I also calculated a current dividend yield of 4.15% at April 27, 2012 for the

8        comparable group.  This calculation is also shown in Schedule ACC-4.  Based on these

9        determinations, I recommend that a dividend yield of 4.23% be used in the DCF calculation.

10       This is the average of the four dividend yield calculations shown above.

11

12   **Q.    What were the dividend yields utilized by Mr. Hevert?**

13   A.    Mr. Hevert's analysis shows dividend yields of 4.35%, 4.42%, and 4.43% for his 30, 90, and

14         180 day analyses respectively.  His dividend yields are higher than the dividend yields in my

15         analysis due to the fact that stock prices have generally risen faster than dividends since Mr.

16         Hevert submitted his testimony.  While the stock prices of virtually all the companies in the

17         comparable group have risen since the Company filed its testimony, only four of the

18         companies have subsequently increased their dividends.  Since stock prices have risen faster

19         than dividends, the resulting dividend yields have declined.

20

21   **Q.    Did you further adjust your recommended dividend yield to reflect future growth in**

1           **dividends?**

2     A.    Yes, I did.   My recommended dividend yield of 4.23% was increased by ½ of my

3           recommended growth rate, as determined below, to reflect the fact that the DCF model is

4           prospective and dividend yields may grow over the next year.  As stated by Mr. Hevert on

5           page 31 of his testimony, "Because utility companies tend to increase their quarterly

6           dividends at different times throughout the year, it is reasonable to assume that dividend

7           increases will be evenly distributed over calendar quarters.  Given that assumption, it is

8           reasonable to apply one-half of the expected annual dividend growth for purposes of

9           calculating the expected dividend yield."   The common practice to increase the dividend

10          yield by ½ of the prospective growth rate is commonly referred to as the "half year

11          convention."

12

13    **Q.    How did you determine an appropriate growth rate?**

14    A.    The determination of an appropriate growth rate is the most controversial aspect of

15          determining the return on equity for a regulated utility.  The actual growth rate used in the

16          theoretical DCF model is the dividend growth rate.   In spite of the fact that the model is

17          based on dividend growth, it is not uncommon for analysts to examine several growth

18          factors, including growth in earnings, dividends, and book value.

19                I believe that it is appropriate to examine both historic and prospective growth rates

20          when attempting to determine the cost of equity for a regulated utility.  Therefore, I have

21          examined the growth rates in earnings, dividends, and book value for each of the comparable

1          companies as reported by Value Line, as shown below:

2

| Past 5 Years - Earnings | 1.8% |
|---|---|
| Past 5 Years - Dividends | 0.1% |
| Past 5 Years - Book Value | 4.6% |
| Past 10 Years - Earnings | 0.1% |
| Past 10 Years - Dividends | (1.6%) |
| Past 10 Years - Book Value | 2.6% |
| Estimated Next 5 Years - Earnings | 6.4% |
| Estimated Next 5 Years - Dividends | 3.9% |
| Estimated Next 5 Years - Book Value | 4.1% |

3

4

5    **Q.    Why do you believe that it is reasonable to examine historic growth rates as well as**

6          **projected growth rates when evaluating a utility's cost of equity?**

7    A.    Historic growth rates should be considered because security analysts have been notoriously

8          optimistic in forecasting future growth in earnings.  At least part of this problem in the past

9          has been the fact that firms that traditionally sell securities are the same firms that provide

10         investors with research on these securities, including forecasts of earnings growth.  This

11         results in a direct conflict of interest since it has traditionally been in the best interest of

12         securities firms to provide optimistic earnings forecasts in the hope of selling more stock.

13         Therefore, earnings growth forecasts should be analyzed cautiously by state regulatory

14         commissions.

15              In addition, relying exclusively on projected growth rates introduces a speculative

16         element into the ratemaking process.  This is evidenced by an examination of the historic

20

1    versus prospective growth rates in this case. For example, actual average earnings growth for

2    the comparable group was only 1.8% over the past five years, and 2.6% over the past ten

3    years, but Value Line is forecasting earnings growth of 6.4% for the next five years, almost

4    2.5 times the historic ten-year growth rate. There is obviously no assurance that such growth

5    will occur. The determination of an appropriate return on equity is generally the single most

6    important factor in utility rate proceedings. To utilize a completely speculative growth rate,

7    especially one that deviates substantially from historic results, without consideration of those

8    historic results may vastly overstate the Company's true cost of capital and result in rates for

9    its customers that are higher than what is necessary to provide safe, adequate and reliable

10   service.

11

12   **Q.    But hasn't growth over the past five years been impacted by poor economic conditions?**

13   A.    While each company is unique, it is certainly likely that the companies in the comparable

14         group have been negatively impacted, to some extent, by the overall downturn in the

15         economy. If so, it is possible that growth over the next five years will be considerably greater

16         than the growth experienced over the past five years. However, the DCF model is attempting

17         to estimate growth over a very long period of time. Theoretically, the growth rate used in the

18         model covers an infinite future period. Thus, even if we knew that growth over the next five

19         years was going to be abnormally high, it would not be appropriate to utilize that growth rate

20         in the calculation of the DCF without some recognition that the five-year growth rate was

21         unlikely to be sustained.

1          The single-stage DCF model used by Mr. Hevert, and that I am using here, assumes

2     that the growth rate will continue into perpetuity.  Thus, the growth rate should be reasonable

3     relative to both long-term growth projections and relative to historic results.

4

5  **Q.    Based upon your review, what growth rate do you recommend be utilized in the DCF**

6  **calculation?**

7  A.   Based on my review of this data, I believe that a growth rate of no greater than 5.0% should

8     be utilized.   This recommended growth rate is higher than the actual average growth rates

9     over the past five or ten years in earnings, dividends or book value.  It is also higher than the

10    projected five-year growth rates for dividends or book value.  While my recommendation is

11    lower than Value Line's five-year projected growth rate in earnings, I have already discussed

12    why projected earnings growth rates should be viewed cautiously by regulators.

13

14  **Q.    How does your recommended growth rate compare with Mr. Hevert's recommended**

15  **growth rates?**

16  A.   Mr. Hevert did not give any consideration to historic growth rates.  Nor did Mr. Hevert

17    consider growth rates in dividends or book value.  Instead, Mr. Hevert only considered

18    projected earnings growth. Mr. Hevert utilized an average of three sources for projected

19    growth: First Call, Zack's, and Value Line.  Mr. Hevert's average growth rates for his

20    comparable group were 5.45%, 5.81%, and 6.61% respectively and his average was 5.96%.

21    Thus, Mr. Hevert's growth rate is 96 basis points greater than the growth rate that I have used

1        in my analysis.

2

3    **Q.    Based on your recommended dividend yield and growth rate, what is the cost of equity**

4            **that is produced by the DCF methodology?**

5    A.      My analysis indicates a cost of equity using the DCF methodology of 9.34%, as shown

6            below:

7                            Dividend Yield              4.23%

8                            Growth in Dividend Yield    0.11%
9                            (1/2 X 5.00% X 4.23%)
10
11                           Expected Growth             5.00%

12                           Total                       9.34%

13

14       **2)  Capital Asset Pricing Model**

15   **Q.    Please provide a brief description of the CAPM methodology.**

16   A.      The CAPM methodology is based on the following formula:

17                   Cost of Equity = Risk Free Rate + Beta (Risk Premium)

18                                          or

19                   Cost of Equity = $R_f$ + B($R_m$-$R_f$)

20           The CAPM methodology assumes that the cost of equity is equal to a risk-free rate

21   plus some market-adjusted risk premium.  The risk premium is adjusted by Beta, which is a

22   measure of the extent to which an investor can diversify his market risk.  The ability to

23

1    diversify market risk is a measure of the extent to which a particular stock's price changes

2    relative to changes in the overall stock market.  Thus, a Beta of 1.00 means that changes in

3    the price of a particular stock can be fully explained by changes in the overall market.  A

4    stock with a Beta of 0.60 will exhibit price changes that are only 60% as great as the price

5    changes experienced by the overall market. Utility stocks have traditionally been less volatile

6    than the overall market, i.e., their stock prices do not fluctuate as significantly as the market

7    as a whole, and therefore their Betas have generally been less than 1.0.

8

9    **Q.    What did you use as the risk-free rate in your CAPM analysis?**

10   A.    While there is no truly risk-free financial instrument, U.S. Government securities are

11         generally perceived by the investment community as being essentially "risk-free." Therefore,

12         I used a risk-free rate based on the rate for long-term (30 year) U.S. Government bonds.

13         During the preceding twelve months, this rate ranged from 4.45% to 2.76%.  In my analysis,

14         I used the rate based on the last 30 days as reported by the Federal Reserve, which was

15         3.24%.

16

17   **Q.    What Beta did you use in your CAPM analysis?**

18   A.    I used a Beta of 0.70, which was the average Beta for the proxy group as reported by Value

19         Line.  See Schedule ACC-7.  This Beta suggests that the comparable group is only 70% as

20         volatile as the overall market.  This relatively low Beta is not surprising, given that utilities

21         are generally viewed as less risky and more stable investments than the average equity

24

1    security.   Utility rates are regulated, utility dividends are relatively stable, and utilities

2    provide underlying services that are necessary to the health and wellbeing of all Americans.

3    Thus, utility stocks are generally viewed as relatively safe investments by the financial

4    community and investors.

5

6    **Q.    How did you determine the risk premium for your CAPM analysis?**

7    A.    Since I am using a long-term U.S. Government bond rate as the risk-free rate, the risk

8          premium that should be used is the historic risk premium of stocks over the rates for long-

9          term government bonds.        According to the Morningstar publication, *2012 Valuation*

10         *Yearbook: Market Results for Stocks, Bonds, Bills, and Inflation, 1926-2011,* the risk

11         premium of using geometric mean returns is 5.2%.

12

13   **Q.    What is the difference between a geometric and an arithmetic mean return?**

14   A.    An arithmetic mean is a simple average of each year's percentage return.  A geometric mean

15         takes compounding into effect.  As a result, the arithmetic mean overstates the historic return

16         to investors.  For example, suppose an investor starts with $100.  In year 1, he makes 100%

17         or $100.  He now has $200.   In year 2, he loses 50%, or $100. He is now back to $100.

18              The arithmetic mean of these transactions is 100% - 50% or 50%/2 = 25% per year.

19         The geometric mean of these transactions is 0%.   In this simple example, it is clear that the

20         geometric mean more appropriately reflects the real return to the investor, who started with

21         $100 and who still has $100 two years later.  The use of the arithmetic mean would suggest

25

1       that the investor should have $156.25 after two years ($100 X 1.25 X 1.25), when in fact the

2       investor actually has considerably less. Therefore, a geometric mean return is a more

3       appropriate measure of the real return to an investor if it is used as I am using it here, i.e., to

4       develop an historic relationship between long-term risk free rates and market risk premiums.

5       Some utilities have been critical of my use of a geometric, rather than an arithmetic mean

6       return, arguing that the arithmetic mean should be used when estimating future returns.

7       While that criticism may be valid if estimating future returns, here I am merely establishing

8       the historic relationship between two financial instruments.  Therefore, as illustrated in the

9       above example, the geometric mean is the appropriate measure.

10

11   **Q.   Given your assumptions, what is the Company's cost of equity using a CAPM**

12       **approach?**

13   A.   Given a risk-free rate of 3.24%, a Beta of 0.70, and a risk premium of 5.2%, the CAPM

14       methodology produces a cost of equity of 6.88%, as shown on Schedule ACC-6.

15

16                   Risk Free Rate + Beta (Risk Premium) = Cost of Equity

17                         3.24% + (0.70 X 5.2%) = 6.88%

18

19   **Q.   What are the most significant differences between your CAPM result and Mr. Hevert's**

20       **CAPM analysis?**

1    A.    Mr. Hevert calculated his CAPM recommendation using several different scenarios.  Three

2          of his scenarios utilized a "near-term projected 30-year Treasury yield" of 3.60%.  However,

3          Treasury yields have not reached 3.60% since Mr. Hevert filed his testimony, and recent

4          yields have been approximately 3.15%, well below Mr. Hevert's estimate.  Even more

5          significantly, Mr. Hevert used unrealistic market risk premiums of 10.28% to 10.80%,

6          approximately twice the risk premium of 5.2% that I utilized and that is supported by long-

7          term market results.

8

9    **Q.    Based on your analysis of the DCF and CAPM results, what cost of equity are you**

10         **recommending in this case?**

11   A.    The DCF methodology and the CAPM methodology suggest that a return on equity of 6.88%

12         to 9.34% would be appropriate.  Since I recognize that the Commission has generally relied

13         primarily upon the DCF, I have assigned a 75% weighting to the DCF methodology results

14         and a 25% weighting to the CAPM methodology results.  This results in a cost of equity of

15         8.73%, as shown below:

16              DCF Result              9.34% X 75% =  7.01%

17              CAPM                    6.88% X 25% =  1.72%

18              Total                                 8.73%

19

27

1          **E.      Comparison to Prior Case**

2    **Q.    Isn't your recommendation low relative to the cost of equity you recommended in the**

3          **Company's last case?**

4    A.    Yes, it is.  However, market conditions have changed since the Company's last base rate

5          case, as discussed below.  Moreover, my recommendation is in line with recommendations

6          made in DPL's pending Maryland base rate case, Maryland PSC Docket No. 9285.  In that

7          case, Staff witness Gregory Campbell recommended that the Maryland PSC award DPL a

8          return on equity of 8.07%, which included a 50 basis point reduction for the fact that the

9          Company has a Bill Stabilization Adjustment ("BSA") mechanism in Maryland.[4]  This

10         recommendation also included an adjustment of 5 basis points to account for flotation costs.

11         Since DPL does not have a BSA in Delaware and since the Delaware PSC has generally not

12         included a flotation cost adjustment, then Mr. Campbell's recommendation would be

13         comparable to a cost of equity recommendation of 8.52% in Delaware (8.07% + 50 basis

14         points – 5 basis points).  Similarly, in the Maryland case the Office of People's Counsel's

15         ("OPC") witness Aaron Rothschild filed testimony recommending a cost of equity of 8.5%,

16         which included a 50 basis point adjustment for the BSA and an adjustment of 6 basis points

17         for flotation costs.  Thus, Mr. Rothschild's recommendation would correspond to a cost of

18         equity of 8.94% in Delaware (8.50% + 50 basis points – 6 basis points).   My

19         recommendation of 8.73% is certainly within the range of recommendations of 8.52% and

20         8.94% supported by Staff and OPC witnesses in DPL's current base rate case in Maryland.

1  **Q.    What is DPL's currently authorized cost of equity in Delaware?**

2  A.    The Company's currently authorized cost of equity is 10.0%.  This cost of equity was

3        authorized by the PSC in Order No. 7903, issued January 27, 2011.

4

5  **Q.    What has generally happened to capital costs since the PSC issued its Order in that**

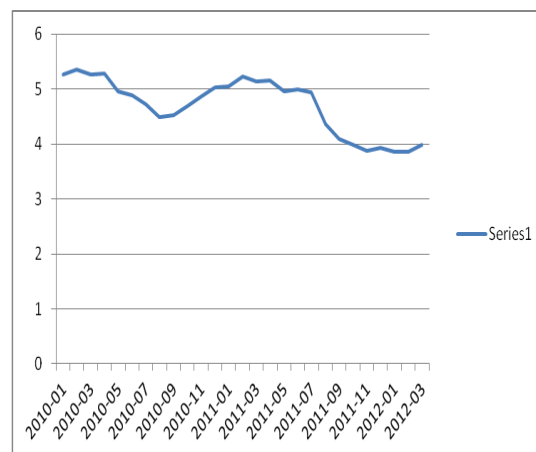6        **docket?**

7  A.    Capital costs have continued to decline since that Order was issued and have fallen even

8        further from where they were when that case was being litigated in 2010. For example, 30-

9        year U.S. Government bonds fell from an average of 4.25% in 2010 to 3.91% for 2011, and

10       fell further to an average of 3.56% for the most recent 12-month period.  My recommended

11       CAPM in the last case used a 30-year rate of 4.57% while my recommendation in this case

12       reflects a rate of 3.24%.

13                            30-Year U.S. Government Bonds



14

15

---

4 Testimony of Mr. Campbell, PSC Docket No. 9285, page 2.
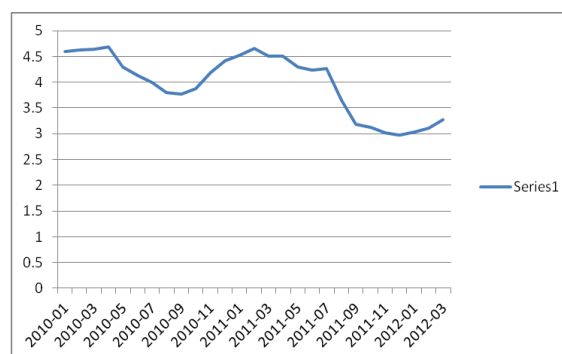
1    A similar trend can be found with corporate bonds. AAA-rated corporate bonds fell from

2    an average of 4.94% for the 2010 calendar year to 4.64% for the 2011 calendar year, as

3    reported by the Federal Reserve. For the most recent 12-month period, the trailing 12-month

4    average further declined to 4.33% and rates have generally been below 4% in 2012.

5                          Corporate Moody's AAA-Rated Bonds



6

7    A similar trend can be found with other corporate bonds, as shown below:

8                          Corporate Moody's Baa-Rated Bonds



9
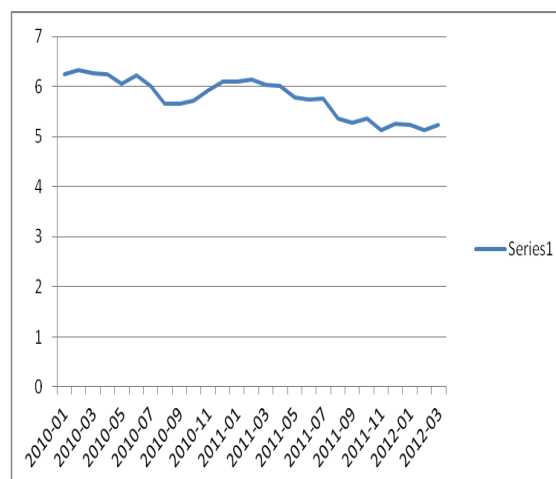
1        Finally, dividend yields have declined as stock prices have increased since the last case.

2    In PSC Docket No. 09-414, I utilized a dividend yield of 4.81% in my DCF analysis, while

3    my current DCF model reflects a dividend yield of 4.23%.  Although Mr. Hevert used a

4    different comparable group than the comparable group used by DPL's witness in its last case,

5    the increase in stock prices over the past 12 months has generally resulted in lower yields for

6    utility stocks.

7

8    **Q.**    **Has the Company's embedded cost of debt declined as well?**

9    A.    Yes, it has.  The Company's embedded cost of debt has fallen from 5.45% in the last case to

10    5.04% in the current filing.  Thus, in spite of the fact that embedded debt costs move much

11    more slowly than incremental costs, the embedded cost of long-term debt has fallen

12    substantially since the last case.

13

14    **Q.**    **What is the significance of these declines in capital costs since the last case?**

15    A.    The message is clear.  While there is likely to be significant debate in this case about the

16    appropriate cost of equity for DPL, the fact is that capital costs have declined substantially

17    since the decision in Order No. 7903.  Regardless of which specific assumptions are used by

18    the PSC to determine an appropriate return for DPL in this matter, it is obvious that a return

19    on equity of 10% is no longer supportable, and even less so the 10.75% recommended by Mr.

20    Hevert.  The decline in capital costs alone is a sufficient rationale for rejecting Mr. Hevert's

21    recommendation in this case.

1    **Q.    Please comment on Ms. Cannell's testimony at page 45 where she states that increased**

2    **risk justifies a return on equity award that is higher than the 10.0% awarded in DPL's**

3    **last base rate case.**

4    A.    Ms. Cannell states that a higher return in required due "rising risk levels in the

5    macroeconomic and capital market environments, as well as recognition on the part of both

6    credit rating agencies and investors that company-specific risks exists." In fact, the

7    macroeconomic environment has improved considerably, due to lower interest rates and

8    higher stock prices. In addition, company-specific risk has been reduced with the sale of

9    PHI's merchant generation business and PHI's renewed focus on its regulated utilities.

10   While investors would undoubtedly prefer that the PSC increase DPL's authorized return, an

11   examination of current risk factors cannot support such an increase.

12   Regardless of economic conditions or company-specific risk, investors always prefer

13   higher utility profits to lower utility profits. Shareholders want higher returns in order to

14   increase dividends and stock prices, while debt holders want higher returns to increase the

15   likelihood of receiving their expected interest payments as well as repayment of the debt.

16   But there is no evidence that investors' required returns have increased since the last case.

17   In fact, the evidence suggests that required returns have declined significantly since the PSC

18   authorized a return on equity of 10.0% in PSC Docket No. 09-414.

19   **F. Overall Cost of Capital Recommendation**

20   **Q.    What is the overall cost of capital that you are recommending in this case?**

21   A.    I am recommending a cost of capital of 6.69%, as shown below:

|                  | Amount ($000) | Percent  | Cost  | Weighted Cost |
|------------------|---------------|----------|-------|---------------|
| Common Equity    | $851,342      | 48.29%   | 8.73% | 4.21%         |
| Short-term Debt  | $47,000       | 2.67%    | 0.35% | 0.01%         |
| Long-term Debt   | $864,769      | 49.05%   | 5.04% | 2.47%         |
| Total            | $1,763,111    | 100.00%  |       | 6.69%         |

1

2  **Q.    Is the Company seeking a departure from traditional rate regulation in an effort to**

3      **address perceived regulatory lag?**

4  A.    Yes, it is.  As discussed in the testimony of Mr. Lowry, DPL is requesting that the PSC

5      consider several new mechanisms to address perceived regulatory lag.   These include the

6      adoption of a Reliability Investment Recovery Mechanism ("RIM"), the use of a fully

7      forecasted Test Period in future rate cases, and the consideration of a multi-year rate plan.

8      DPL is also requesting that a MFV rate design be implemented on January 1, 2013.  Each of

9      these proposals would have an impact on the risks borne by DPL's shareholders.  The MFV

10     eliminates virtually all revenue risk in that it provides a fixed amount of distribution revenue

11     regardless of customer usage.  The proposed RIM provides for accelerated recovery of capital

12     costs, including recovery of costs for projects not yet completed or providing utility services

13     to ratepayers.  The use of a future test year allows rates to be set based on speculative

14     forecasts and severs the relationship between a utility's actual costs and its rates.  Multi-year

15     rate plans provide guaranteed rate increases without the scrutiny and protections present in a

16     full base rate case.

17

1    **Q.    What impact would the adoption of one or more of these proposals have on the**

2          **Company's risk profile?**

3    A.    The adoption of one or more of these proposals will decrease shareholder risk to various

4          degrees.  I understand that the DPA is generally opposed to the Company's proposals and

5          therefore my return on equity recommendation assumes that none of these proposals will be

6          implemented.  However, if the PSC adopts one or more of these proposals, then it should

7          make a corresponding reduction to the return on equity.  For example, the Maryland PSC

8          implemented a 50 basis point reduction to return on equity when it adopted the BSA

9          mechanism.  The magnitude of any such reduction should depend on the specifics of the

10         proposal accepted by the PSC and the degree to which shareholder risk is reduced.  However,

11         it is critical that the PSC recognize that any deviation from the traditional ratemaking

12         methodology will reduce shareholder risk.  At the same time, such proposals increase risks to

13         ratepayers who could be faced with more frequent rate increases, utility costs that are no

14         longer tied to usage, and rate increases that are based on speculative estimates of future costs.

15          Any such transfer of risk from shareholders to ratepayers must be accompanied by a

16         commensurate reduction in the authorized return on equity.

17

18   **Q.    Have you quantified what a reasonable return on equity adjustment might be if the**

19         **PSC adopts one or more of the Company's proposals?**

20   A.    It is difficult to quantify such an adjustment without knowing the specifics of the proposal(s)

21         that may be adopted by the PSC.  However, in PSC Docket No. 09-414, I recommended that

1    if the PSC implemented a MFV rate design, then it should reduce DPL's return on equity

2    premium by 50% to reflect the fact that revenue risk would essentially be eliminated for the

3    utility.  As explained in my testimony in that case, DPL faces two kinds of risks.  First, it

4    faces the risk of reduced revenues due to multiple factors, including weather variations,

5    economic influences, technological changes, and other factors.  Second, it faces the risk of

6    increased costs.  However, if a MFV rate design is implemented, then the Company's

7    revenue risk is transferred from shareholders to ratepayers.  Accordingly, in that case I

8    recommended that 50% of the risk premium be eliminated on the basis that half of the risk

9    premium was related to revenue risk and half was related to expense risk.

10    In this case, I am recommending a return on equity of 8.73%, which is 369 basis

11    points higher than DPL's embedded cost of long-term debt of 5.04%.  Accordingly, a similar

12    recommendation in this case would reduce the Company's cost of equity from 8.73% to

13    6.89%.

14    With regard to the RIM proposal, I believe it would be appropriate to limit the return

15    on these projects to the Company's short-term debt rate until such time as the Company files

16    a new base rate case and the projects are rolled into rate base.  At that time, the overall cost

17    of capital would apply.  The impact on risk of the future Test Period proposal put forth by the

18    Company is more difficult to quantify without knowing how it might be implemented.  For

19    example, if the future Test Period was required to have a verifiable link to historic results,

20    then the impact on risk would be less than it would be in the event that no such link was

21    required.  Similarly, the impact on risk of a multi-year rate plan would depend upon the

1    specific details of the plan and how it was implemented.  Regardless of the particulars of any

2    of these risk-shifting or risk-reducing initiatives, it is critical that the PSC adopt a return on

3    equity adjustment in recognition of the decrease in risk to shareholder and the corresponding

4    increase in risk to ratepayers.

5

6    **Q.    Does this conclude your testimony?**

7    A.    Yes, it does.